USGS

Africa Physical and Cultural Geography Project
Activity 3

Instructions for Students

Goal: Understand the interrelationships among *resources, the human environment, and the physical environment* of Africa.

Save often during this exercise. Choose "File", "Save Project" .

Step 1. Open ArcView. Open the project you saved in the Africa Activity 2 by accessing the menu: File--> Open Project.

Step 2. The project opens with its exact appearance as of the last time you saved it. Open the "Relief" view by double-clicking on it if it doesn't automatically come up when you open your project. Next, add additional data themes:

View

Add Theme 

Navigate to the folder where you stored the data.
Select "manuf.shp", "minerals.shp", and "mining.shp."

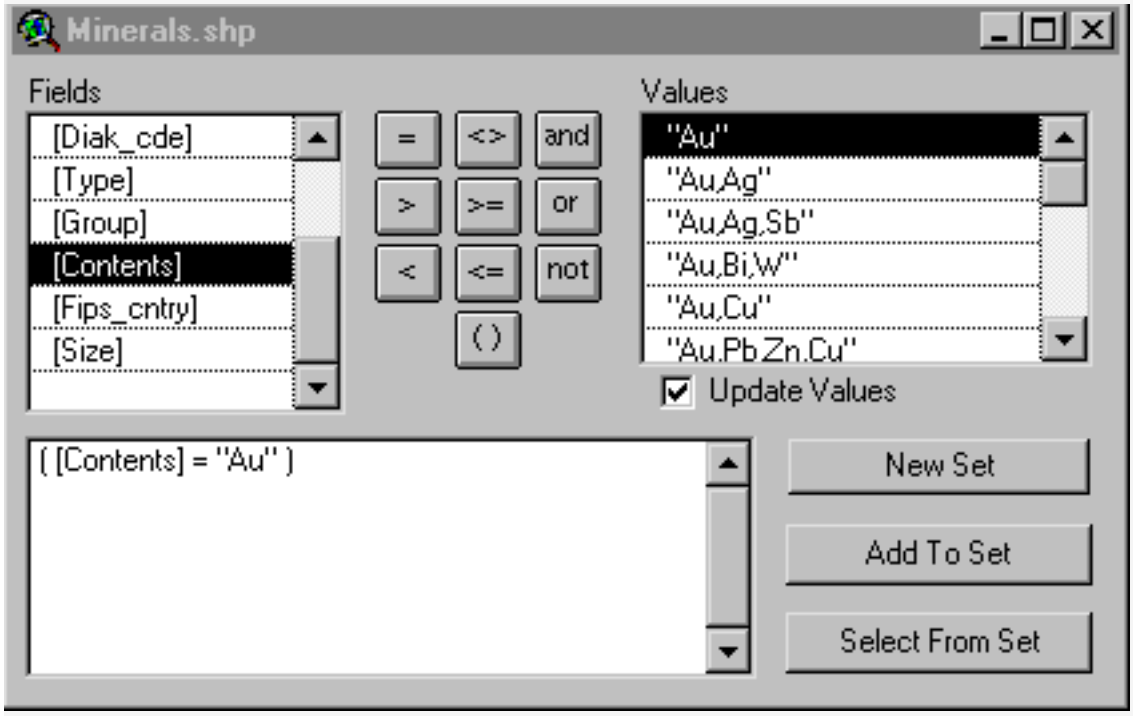
Step 3. Make "country.shp" viewable. All other themes should be turned off.

Step 4. Make "country.shp" the active theme by single-clicking on the name of the theme. Access the legend editor by double-clicking on the theme name. When the legend editor appears, double click under "Symbol" and then choose the paintbrush symbol.  Click in the upper left box of the color palette to make it transparent. Click on "Apply."

Step 5. Arrange your view window to place themes in the following order from top to bottom:

manuf.shp
mining.shp
minerals.shp - make this visible
country.shp - make this visible
relief.shp

Step 6. You are going to create separate map layers for gold, oil, diamonds, coal, copper, and uranium. Make the minerals theme active. Click on the Query Builder tool (). Double-click on the field "Contents", then click the equals sign, and end with a double-click on "Au" (Gold). Your expression should look like:



Click on New Set.

Step 7. Now you are going to create a shapefile, which saves your query in the form of a map. Under the "Theme" menu, click on "Convert to Shapefile." Name it gold.shp in your working directory (folder). Add it as a Theme to the View. You should now see the new "Gold" theme. Click on it to make it visible.

Step 8. Repeat steps 6 and 7 to create oil, diamonds, coal, copper, and uranium.

Step 9. Make the "oil.shp" theme active and visible.

Step 10. Go to Menu and select "Add Theme."  . Navigate to the esri, esridata, and africa folders. Under "data sources" select "pipeline.shp." Select "Add." Click on the "pipeline.shp" theme to make it visible. Your map should now show the country outlines, pipelines, and oil deposits.

Step 11. Answer the following questions using this map setup:

A) Notice the pipelines in north and west Africa, comparing them to the pipelines in east Africa. How would you determine which pipelines are being used to import oil and which pipelines are being used to export oil?

B) Name three countries that are using pipelines to export oil:

C) Name three countries that are using pipelines to import oil:

D) Notice the oil deposit in central Sudan. Give two possible hypotheses as to why this oil deposit is not connected to a pipeline.

Step 12. Click off (deselect) pipeline.shp to make it invisible. Click off (deselect) oil.shp to make it invisible. You should now have a map of only the outlines of African countries.

Step 13. Double-click on the "mining.shp" theme. Under Legend Type, select "Unique Value." Under the Values Field, go to Size. Click on symbol for very large. Go to the paintbrush  and make the symbol red. Click "Apply." The red dots show the largest mining properties.

Step 14. Using the identification tool () click on several of the red dots to determine the type of material mined.

Step 15. Complete the following steps to answer the question:

A) Using the identification tool, determine the type of material mined at any three sites in different countries, being sure to list the country as well. You will have to make the "country.shp" theme active and use the identification tool to identify the countries.

B) Make the "relief.shp" theme active and visible. Is there any correlation between the type of relief and very large mineral deposits? Explain what you found.

Why are different mineral deposits found in different relief forms?

Step 16. Deselect "relief.shp" and "mining.shp" to make them invisible. Add theme popden.shp and make it visible. Make "manuf.shp" visible. Make the population density theme active and double-click on it to call up the legend editor. Change "Legend Type" to "Graduated Color" and change "Classification Field" to "Density" and Apply.

A) Is there a correlation between manufacturing and population density? What is it? Give one hypothesis why.

B) Zoom in on several specific countries  to see this correlation more clearly. At a larger scale, does the correlation hold true?

Step 17. Click off the manufacturing and population density. Click on coal, uranium, copper, gold, oil, and diamonds. You will find it easier to distinguish between the different minerals if you make each one a different color and symbol. Starting with coal, do the following steps to change symbols:

Double-click on the theme you want to change.
Double-click on symbol.
Change symbol type  and change symbol.
Click on paintbrush  and select different color.

Click "Apply."

Do this for each of the 6 minerals.

A) Explain three things you notice about the patterns now on the map.

Save your project, and Exit ArcView.

****** End of Africa Activity 3 ******

Back to Africa Lesson Index

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Rocky Mountain Mapping Center
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